REMARKS

The examiner has objected to the reference to claim 1 at page 1, line 5. Applicant has amended the specification to remove the reference to claim 1.

Canadian (CA) Patent 1,218,772 is now described with more particularity. The Canadian patent corresponds to U.S. Patent 4,566,968. Applicant does not consider this document sufficiently pertinent to cite on an Information Disclosure Statement.

Claims 17-23, 25-30, 32-43, and 45-49 stand rejected under 35 U.S.C 103(a) as being unpatentable over Schofield in view of Faivre.

Schofield discloses a device for measuring the flow of liquid through a pipe or duct, specifically as related to sewage systems. The device functions by measuring the angular displacement of an impact plate, or flap 14, that is placed over the outlet opening 13 of a sewage pipe 12 and displaced when liquid flows through the pipe 12 and out of the outlet opening 13. The amount of displacement is a direct function of the rate of flow of liquid through the pipe. Schofield goes on to disclose that in order for the device to function correctly a specific shaped flap is needed. Schofield teaches that the lower edge of the flap contacts the highest point on the liquid surface, regardless of the level of the liquid surface. Schofield shows that the shape of the liquid surface, and hence the location of the highest point, depends on the level of the liquid surface. Thus, at a low flow rate, the lower edge of the flap contacts the liquid surface at the center of the stream whereas at a higher flow rate, the lower edge contacts the liquid surface at the edges of the stream (see FIGS. 7, 9 and 11). This necessitates that the width dimension of the impact plate or flap be substantially the same as the horizontal dimension of the outlet opening 13.

Faivre discloses a device for measuring the clean yield of an agricultural crop that is being somehow conveyed, for example by the clean grain elevator of a combine. Lacking Faivre's device, a combine conveys grain, or some other agricultural product, vertically using paddles in the combine's clean grain elevator. The grain is then transferred to some type of storage unit, such as a bag or bin. During the transfer process the clean yield product separates from the paddles and is "propelled by centrifugal forces forwardly and upwardly" (column 8, lines 15-16) from the top of the clean grain

elevator and is deflected off the elevator's shroud and falls in to the storage unit. Faivre's device features an actuating arm 102 that is mounted to the shroud of the clean grain elevator and positioned such that a portion of the clean yield product will come into contact with, and thus cause a stress on, the sensor while it is traveling from the elevator paddles to the storage unit. The actuating arm is connected to a load cell, which "acts as a differential bending beam" (column 8, line 24). This structure produces an output signal that is representative of the stress difference between two points on the actuating arm. Thus the clean yield of the agricultural crop is measured by the stress put on the actuating arm. In order for this device to not significantly interfere with the normal function of the combine, Faivre specifically teaches that the actuating arm have a horizontal dimension that is both uniform for the vertical length of the actuating arm, and considerably smaller than the width of the flow of the clean yield product (column 9, lines 13-31).

It would not have been obvious to a person of ordinary skill in the art to combine the designs of Schofield and Faivre, as Schofield specifically teaches using a sensor with a width substantially equal to the horizontal dimension of the outlet opening. A person of ordinary skill in the art would not find it obvious to reject this clear teaching of Schofield and use the narrow actuating arm 102 of Faivre because it would not then be possible to accommodate the variation in shape of the liquid surface, as shown in FIGS. 7, 9 and 11 of Schofield. Further, it would not have been obvious to apply the teaching of Faivre to Schofield because Faivre specifically teaches that the actuating arm should remain stationary (column 3, lines 66-67) whereas Schofield requires that the lower edge of the impact flap follow the surface of the liquid flowing from the outlet opening 13. Finally, there is no suggestion in the prior art that a device that measures the quantity of clean yield crop traveling from a clean grain elevator to a storage bin should be applied to a flow meter for measuring the level of liquid flowing out of a pipe.

Further, if it should be deemed obvious to apply the actuating arm of Faivre to the measuring device of Schofield, the resulting structure would not be in accordance with the present invention because Faivre teaches that the actuating arm should be stationary

whereas claims 17, 30 and 37 require that the sensor element should be movable relative to the structure that defines the outlet opening.

There is no teaching, suggestion or motivation evident from the prior art that would have led a person of ordinary skill to take the narrow actuating arm of Faivre and install it in the flow meter of Schofield in lieu of the wide impact plate. The only basis for such a combination is improper hindsight reconstruction of applicant's invention.

In view of the foregoing, applicant submits that the independent claims 17, 30 and 37 are patentable over Schofield and Faivre, whether taken singly or in combination. It follows that the dependent claims 18-29, 31-36, and 38-49 also are patentable.

Respectfully submitted,

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